Example #12: In the diagram above, if the right ball has a mass of 5.2 kg and an initial speed of 1.4 m/s at the top of the 2.8-m high ramp, what will its speed be at the bottom of the ramp?

At top, $E_T = E_p + E_k$

$= mgh + \frac{1}{2}mv^2$

$= 5.2(9.8)(2.8) + \frac{1}{2}(5.2)(1.4)^2$

$= 148\ J$

At bottom, $E_T = E_k = \frac{1}{2}mv^2$

$148 = \frac{1}{2}(5.2)v^2$

$\boxed{v = 7.5\ m/s}$